Running head: Factors Influencing Teachers' Professional Development at Work

Full title: **Organisational and Task Factors Influencing Teachers' Professional Development at Work**[1]

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Structured Abstract

Purpose
The development of life-long learning competencies and, consequently, the careers of teachers, has become a permanent issue on the agenda of schools worldwide. The workplace is also increasingly regarded as *the* place to develop these competencies. The main purpose of this article is to investigate organisational (cultural and relational) and task factors which potentially enhance Teachers' Professional Development (TPD) at Work.

Methodology
A model incorporating the relationships between organisational and task factors as predictor variables, and TPD at Work as the dependent, is presented and tested empirically by a quantitative (survey research) method.

Findings
The study results indicated that learning climate, social support from one's immediate supervisor, social support from close colleagues, and learning value of the function can act as important job resources for TPD at Work. Work pressure and emotional demands, on the other hand, appeared to act as job demands for TPD at Work, but also have the potential to enhance TPD at Work.

Research limitations
The most important limitations of the study were the cross-sectional nature and the use of self-ratings only, which may imply common-method bias.

Practical implications
To enhance TPD at Work, it is vital for actors inside and outside schools to focus on the right working conditions (as mentioned under findings) in schools, so that teachers can learn from their job.

Originality
Knowledge in schools and empirical research about which factors at the organisational and task level are important to enhance TPD at Work seems scarce. This research contributes to this knowledge gap.

Introduction

Schools across the Netherlands, and in many countries worldwide, are challenged to guarantee high-quality teaching to their pupils (Commissie Leraren, 2007; National Staff Development Council, 2009; OECD, 2009, 2013). This challenge is three-folded. First, schools are faced with an increasing shortage of teachers, both in terms of quality and quantity, due to the ageing of the teachers' population, on the one hand, and the decrease in new teachers entering the labour market, on the other hand (Commissie Leraren, 2007). This quantitative shortage may tempt schools to attract unqualified teachers, or to give them more responsibilities than they are authorized to. Therefore, schools risk that the quality of their teaching is declining with, presumably, severe negative consequences for their learners' performance (Cornet *et al.*, 2006).

In addition, this risk of a decline in the quality of teaching may be exacerbated by the second challenge schools are facing, namely, the transformation of our post-industrial society into a knowledge- and technology-based one. This means that learners and teachers have to possess so-called '21st-century skills' that are needed to cope with the requirements of tomorrow's society (Somekh, 2005). Therefore, Teachers' Professional Development (TPD) and teachers' careers, have become an important issue on the agenda of schools worldwide (Rippon, 2005). Traditionally, professional development of workers is organized by Human Resource Management (HRM) departments in large organisations. Hill and Stewart (2000) already suggested that small and medium-sized enterprises do not have the HRM expertise, general resources and infrastructure which large organisations more frequently enjoy. Also, in school organizations, if existing, nowadays, such departments are very small.

This brings us to the third challenge schools are facing currently: not having the knowledge about which factors are important to enhance TPD, and, more specifically, TPD at Work. HRM professionals should obtain more insights into the matter of how to develop

employees, that is teachers, in a (school) organisation (McGoldrick *et al.*, 2002; McGuire and Cseh, 2006). An often heard criticism is that researchers focus on just a few variables, herewith implying an isolated picture of reality. In order to respond to this shortcoming, the goal in this study was to look at TPD at Work in an integrative way. This is why we focused on the broader categories of organisational and task factors influencing TPD at Work, which implied including a relatively large number of independent variables. Therefore, the central research question is: "Which organisational and task factors are key to enhance TPD at Work?" In answering this question, the influence of a larger set of assumed predictors for TPD at Work will be empirically tested.

Theoretical Outline

TPD at Work: Participation in Professional Learning Activities

In addition to formal learning, the range of possible learning activities at the workplace has been broadened to include informal learning at work as well (Cheetham and Chivers, 2001; Eraut, 2004; Tynjälä, 2008). Marsick and Watkins (2001, p. 25) defined informal learning in education as "[…..] not typically classroom-based or highly structured, and control of learning rests primarily in the hands of the learner." Based on Avalos (2011), Brookfield (1995), Evers (2012), Geijsel *et al.* (2009), and Kwakman (2003), in this contribution, the focus is on TPD at Work. TPD at Work is defined as participation in the following formal and informal learning activities: 1) Keeping up-to-date: reading; 2) Keeping up-to-date: participation in training related to work; 3) Experimenting; 4) Reflecting and asking for feedback, 5) Collaborating with colleagues with the aim of improving the lessons; and 6) Collaborating with colleagues with the aim of improving school development.

First, according to Kwakman (2003), a critical goal of reading is keeping up-to-date by gaining new insights and advancements in one's professional field. The importance of getting

acquainted with domain-specific knowledge was also stressed by Brookfield (1995). Second, in addition to Kwakman (2003), and in accordance with Geijsel *et al.* (2009), 'participation in training related to work', being a TPD at Work activity, is also included in our research model. In order to increase its practical value, it is essential that the content of training has a strong connection to daily work activities of teachers (see also Postholm, 2012). Third, experimenting comprises an intentional effort of teachers to undertake something new within the classroom (Kwakman, 2003). Fourth, reflecting and asking for feedback (Avalos, 2011; Runhaar, 2008), implies stepping back from an experience, in order to consider the meaning of that experience to the self through the analysis of its consequences (Retallick, 1999). This learning activity coincides with Brookfield's (1995) emphasis on self-reflection and student feedback. Finally, collaboration is essential for one's professional development as it provides employees, in this case teachers, the necessary support for learning, offers them a basis for critical thinking, and entails new challenges and ideas (Evers, 2012; Kwakman, 2003). Moreover, Little (1990) already concluded that the *content of collegial interaction* is very important in the light of the contribution or added value of collaboration with colleagues to TPD. In a similar vein, Brookfield (1995) stressed the importance of engaging with peers. Therefore, we will focus specifically on two types of collaboration with *colleagues* that centre on its content: collaborating with colleagues with the aim of improving the lessons, being the fifth learning activity, and collaborating with colleagues with the aim of improving school development, being the sixth one.

Organisational Factors

Following the subdivision as mentioned in Evers *et al.* (2011), two levels of organisational factors were incorporated in this study: 1) cultural factors, and 2) factors referring to social-psychological relations. These types of factors can be perceived as being job resources and are hypothesized to influence participation in professional learning activities (see also Bakker and

Demerouti, 2007; Evers *et al.*, 2011). Job resources are characterized as those factors that foster employees' growth, learning and development (Bakker and Demerouti, 2007; Bakker *et al.*, 2010), and form part of the Job Demands-Resources (JD-R) model. The JD-R model will be explained further on in the section on Task factors. We will now first discuss the so-called cultural factors.

Cultural Factors

Culture is described as a deeper, less consciously, held set of cognitions and affective attachments (Mikkelsen and Grønhaug, 1999). Drawing from prior literature (Stol *et al.*, 2006; Van Woerkom, 2003) two cultural factors which are believed to be essential for the professional development of teachers at work were identified: 1) learning climate and 2) team membership.

Learning climate. Learning climate is characterized as the time spent on collective reflection, the amount of contacts between different teams and departments in an organisation, learning from the practices of other organisations, and the tolerance towards the different opinions of 'mavericks' (Van Woerkom, 2003). Learning climate is an important condition to be fulfilled for the actual learning behaviour at work to take place. Marsick and Watkins (2001) noted that these kinds of stimuli (the characteristics of the learning climate) in an organisation indeed may trigger informal learning in the workplace. In addition, given the outcomes of previous research (Van Woerkom *et al.*, 2002), it is assumed that learning climate is an important positive predictor of TPD at Work.

Team membership. O'Leary *et al.* (2011) described how team membership potentially contributes to learning. Nowadays, team work in schools is more and more stimulated (Commissie Leraren, 2007). An important goal of team work is to grow towards a 'collegial organisation' wherein teachers are jointly accountable for the school's culture and performance. As in such an organisation more frequent meetings take place and as

collaboration in networks is stimulated (Stol *et al.*, 2006), it is assumed that a teachers' team membership positively influences TPD at Work.

Now that we have discussed cultural factors, we will continue with factors referring to social-psychological relations and their assumed impact upon TPD at Work.

Social-Psychological Relations

A social-psychological relationship is built up through the natural and repeated action and communications among the partners (Sahlstein and Duck, 2001). Based on previous literature (Evers *et al.*, 2011), the following factors comprising social-psychological relations were taken into account in this empirical study: 1) transformational leadership, 2) career possibilities offered by the supervisor, 3) social support from one's immediate supervisor, and 4) social support from one's close colleagues.

Transformational leadership is a leadership style that refers to leaders having the ability to give a clear vision for the future, to inspire employees, to stimulate employees to develop their talents in the best possible way, and to give their work a deeper meaning (De Hoogh *et al.*, 2004). Previous research has indicated that 'transformational leadership' contributes to the professionalization of teachers (Geijsel *et al.*, 2009; Runhaar, 2008). Recently, Fullan (2014) even stressed that one of the school leaders' main roles is to *lead learning*. Therefore, a positive influence of this leadership style on TPD at Work activities was expected as well.

Career possibilities offered by the supervisor. Career possibilities comprise the career growth opportunities (e.g., opportunities for promotion) offered by the organisation for their employees (Van Veldhoven and Meijman, 1994). A lack of these kinds of possibilities may severely hamper employees' (cognitive) development (Van der Heijden, 2003). Indeed, according to Skule (2004), career opportunities shape the conditions for learning at work. In

schools, the supervisor is the main actor who can offer the career possibilities to teachers. It is, therefore, hypothesized that this factor positively influences TPD at Work.

Social support from one's immediate supervisor and close colleagues. In accordance with House (1981) and Van der Heijden (2003), four functions of social support for teachers were distinguished. The first function is instrumental, with the support being oriented towards the accomplishment of tasks. The second function is emotional, with the support being oriented towards the emotional aspects of accomplishing the task. The third function comprises informational support: it assists individuals to help themselves so that they are enabled to proceed with their tasks. The fourth function is appraisal support, which entails the transmission of information that is relevant to self-evaluation. The value of support of one's immediate supervisor for learning on the job was already demonstrated in previous empirical studies of Felstead *et al.* (2005) and Blokhuis (2006). As regards social support from close colleagues, Kwakman (2003) found a positive relationship between collegial support and certain learning activities for teachers in secondary education. In addition, Berings *et al.* (2010) found direct and indirect effects of social support by the supervisor and indirect effects of social support by colleagues on learning behaviours. In line with this all, social support from one's immediate supervisor and from close colleagues was expected to be (positively) related to TPD at Work activities.

Based on the theoretical outline given above, the following hypothesis was formulated:

Hypothesis 1. Organisational factors, more specifically, cultural (learning climate and team membership), and social-psychological relations (transformational leadership, career possibilities offered by the supervisor, social support from one's immediate supervisor, and social support from close colleagues) are positively related to TPD at Work activities.

In the next section, we will discuss task factors that are also hypothesized to have a positive influence on TPD at Work activities.

Task Factors

An important and relevant theory that incorporates task factors is the JD-R model (Demerouti *et al.*, 2001). Job (or task) demands are defined as "stress sources (stressors), such as work load demands, present in the work environment" (Karasek, 1979, p. 287). Job resources refer to resources at the level of the organisation at large (see above) and at the level of the task (Bakker and Demerouti, 2007). In this study, the focus lies on the direct effects of demands and resources upon TPD at Work activities (see also Bakker and Demerouti, 2007). First, two task *demands'* factors will be discussed: (1) work pressure and (2) emotional demands. Next, three task *resources*' factors will be elaborated on: (1) autonomy, (2) the learning value of the function and (3) tasks apart from teaching.

Work pressure and emotional demands. Work pressure is defined as "quantitative demanding aspects such as the pace of work and workload" (Kwakman, 2003, p. 161). Kwakman (2003) found a direct positive significant effect of work pressure on participation of teachers in two types of TPD: collaborative activities and instructional activities. Van Ruysseveldt and Van Dijke (2011) found a positive relationship between workload and learning activities but only at low and moderate levels of workload and moderate levels of autonomy. Emotional demands refer to "the extent to which the teaching job requires emotional investment" (Kwakman, 2003, p. 161). Again, Kwakman (2003) found a direct positive effect of emotional demands on three types of TPD at Work activities: collaborative activities, individual activities and instructional activities. Moreover, positive, significant, albeit small, effects of work pressure and emotional demands on participation in professional learning activities have also been reported by Kwakman (2001). Therefore, work pressure and

emotional demands have been hypothesized to influence participation in TPD at Work activities in a positive way.

Hypothesis 2. Task demands' factors, more specifically, work pressure and emotional demands, are positively related to TPD at Work activities.

Autonomy. Autonomy, being an essential factor related to learning and growing of teachers (Bakker and Demerouti, 2007; Hoekstra, 2007; Kwakman, 2003), refers to "the opportunity of the teacher to determine different task-related characteristics" (Kwakman, 2003, p. 161). Van Ruysseveldt and Van Dijke (2011) found that low levels of autonomy was jeopardizing the positive effects of a low to moderate workload to learning activities whereas high levels of autonomy makes a high workload less destructive for learning activities. In addition, autonomy has proven to improve feedback practices (Lee, 2008). Lui and Fu (2011) studied autonomy support from three different sources on personal learning in teams. They found all three autonomy sources to be predictors for personal learning. Therefore, autonomy, in general terms, was expected to positively influence TPD at Work activities.

Learning value of the function. The following task factor that is incorporated in our model comprises the *learning value of the function* for the employee him or herself (Van der Heijden, 1998; Van der Heijden *et al.*, 2005). This was defined as "the value which the function has as a nutrient for the employee's further professional development" (Boerlijst *et al.*, 1993, p. 57). Therefore, the learning value of the function was expected to be a positive predictor for TPD at Work activities.

Tasks apart from teaching. Tasks that teachers have to fulfil apart from teaching may be beneficial for their learning as well. After all, additional tasks may stimulate them to think about their teaching expertise, and to further develop these. Kwakman (2003) already found that job variety, a related concept, had a positive effect on collaborative (learning) activities.

Stok-Koch *et al.* (2007) found, amongst others, that task variation was a factor influencing workplace learning. From the theoretical outline given above, it was hypothesized that:

Hypothesis 3. Task resources' factors, more specifically, autonomy, learning value of the function, and tasks apart from teaching are positively related to TPD at Work activities.

For sake of clarity, the discussed relationships are visualized in the following model (see Figure 1):

******Insert Figure 1 about here******

Method

In order to investigate the relationships as depicted in Figure 1, and to test its accompanying hypotheses, we adopted a quantitative survey approach. More concrete, we have used a web-based survey, except for one school, as this has the advantage of efficient data collection, and as it limits the number of missing items. We have tested our hypotheses by means of multiple hierarchical regression analyses.

Sample and Procedure

Data was collected by means of a survey study that was administered in nine Dutch primary schools and in 15 Dutch secondary schools (these teachers were located in 34 secondary school locations). The survey was pilot tested among several experts in the field of primary and secondary education (teachers and directors) in order to examine the face validity of its operationalization. The survey was web-based, except for one school, where a paper-and-pencil form was used. In total, 2,385 teachers were approached (two reminders to each school were sent individually) of whom in total 692 (118 primary teachers and 574 secondary teachers) returned a completely filled out survey. This implied a total response rate of 29%.

For on-line questionnaires, this response rate is quite common (Sheehan, 2001). The final sample characteristics are shown in Table 1.

******Insert Table 1 about here******

Measures

TPD at Work. The scales for *TPD at Work* were based on the previously validated instrument by Evers *et al.* (accepted), utilizing a 4-point rating scale (1 = hardly ever to 4 = often). Teachers were asked to indicate how often they participated in each professional learning activity. The first scale, *keeping up to date: reading*, consisted of three items. Cronbach's alpha was .73. An example item was: "Studying subject matter literature." The second scale, *keeping up-to-date: participation in training related to work*, had two items. Cronbach's alpha comprised .72. An example item was: "Participation in a training course that centres around subject matter pedagogy." The third scale, *experimenting*, consisted of five items. An example item was: "Testing alternative teaching materials in class." Cronbach's alpha was .80. *Reflecting and asking for feedback*, the fourth scale, had four items. An example item was: "Adapting my teaching methods in response to pupils' reactions." Cronbach's alpha was .67. Three items were used for the fifth scale, *collaborating with colleagues with the aim of improving lessons*. Cronbach's alpha comprised .67. An example item was: "Preparing lessons with colleagues." Finally, the sixth scale, *collaborating with colleagues with the aim of improving school development*, was based on four items. An example item was: "Give an opinion together with colleagues about school organisational matters to the school management." Cronbach's alpha was .73.

Cultural factors: Team membership. This was measured by means of one question: "Are you currently a member of a team?"

Cultural factors: Learning climate. To create the scale for *learning climate*, the learning climate scale of Van Woerkom (2003) was shortened and slightly adjusted, in order to make it

suitable for an educational setting. This resulted in a final scale consisting of five items. All items were measured on a 4-point scale (ranging from 1 = hardly ever to 4 = always). An example item was: “Time is reserved to work together on our professional development.” Cronbach’s alpha was .70.

Social-psychological relations: Transformational leadership. This scale was assessed by the scale of De Hoogh *et al.* (2004). The eleven items were measured on a 7-point rating scale (ranging from 1 = totally disagree to 7 = totally agree). An example item was: 1) “My immediate supervisor encourages employees to think independently.” Cronbach’s alpha comprised .95.

Career possibilities offered by the supervisor. This scale was based on a scale by Van Veldhoven and Meijman (1994). The two most relevant items for teachers were selected and ‘my job’ was replaced by ‘my immediate supervisor’ and ‘employees’ was added to the items. It consisted of two items 1): “My immediate supervisor offers employees financial grow opportunities.” and 2): “My immediate supervisor offers employees opportunities for promotion.” The same rating scale as for transformational leadership was used (ranging from 1 = totally disagree to 7 = totally agree). Cronbach’s alpha was .90.

Social-psychological relations: Social support from one’s immediate supervisor and *social support from close colleagues.* These scales were both measured with four items using the thoroughly validated 6-point rating scales by Van der Heijden (2002, 2003). An example item was: “Is your immediate supervisor in general ready to help you with the performance of your tasks?” (ranging from: (1) “in my opinion, (s) he shows little willingness to help me” to (6) “in my opinion, (s) he is very willing to help me”), and “are close colleagues in general ready to help you with the performance of your tasks?” Cronbach’s alpha’s were respectively .85 and .78.

Task factors: Work pressure. The measurement scale for *work pressure* consisted of seven items (Kwakman, 2003; originally Van Veldhoven and Meijman, 1994), and utilized a 4-point scale (ranging from 1 = hardly ever to 4 = always). An example item was: "Are you working under time pressure?" Cronbach's alpha was .74.

Task factors: Emotional demands. The scale emotional demands used four items (Kwakman, 2003; originally Van Veldhoven and Meijman, 1994), and also utilized a 4-point scale (ranging from 1 = hardly ever, to 4 = always). An example item was: "Are you confronted in your work with aspects that affect you personally?" Cronbach's alpha comprised .67.

Task factors: Autonomy, referring to teachers' possibility to decide on different task-related characteristics, like the pace of work, the method, and work order was measured by means of five items from the VBBA (Van Veldhoven and Meijman, 1994). These items were regarded as most suitable for the teaching profession (Kwakman, 2003). Again a 4-point scale (ranging from 1 = hardly ever to 4 = always) was used. An example item was: "Do you have influence on the pace of work?" Cronbach's alpha comprised .82.

Task factors: Learning value of the function. To measure learning value of the function the validated scale by Van der Heijden (1998) (see also Van der Heijden *et al.*, 2005; Van der Heijden and Bakker, 2011) was used. This scale comprises six items, each using a 6-point scale (ranging from 1 = strongly disagree to 6 = strongly agree). An example of an item was: "My job enables me to further develop my talents." Cronbach's alpha was .86.

Task factors: Tasks apart from teaching. This variable was measured by means of one item: "Do you currently fulfil other tasks than teaching?"

The following demographic characteristics were incorporated as control variables in our study: *primary/secondary education, gender, educational qualification and age.* Primary education serves as the reference category for education. For gender, women serves as the

reference category. Gender, educational qualification and age are often used as control variables in research about professional development and previously some significant effects have indeed been found (e.g., Runhaar, 2008).

Results

Descriptive Statistics

In Table 2, the descriptive statistics (means, standard deviations, reliability coefficients, and inter-correlations between all model variables) are shown. As Table 2 shows, most indices appeared to have sufficient alpha levels of > .70 (Nunnally, 1978). However, three indices appeared to have a Cronbach's alpha between .60 and .70. Scale reliabilities for emotional demands, reflecting and asking for feedback, and collaborating with colleagues with the aim of improving the lessons were in all cases .67. According to Loewenthal (2001), a slightly lower index (of about .60), is acceptable in case: 1) there is good evidence for validity, 2) there are good theoretical reasons for the scale operationalization and when 3) the scale is relatively short (less than about 10 items). These criteria applied to all of the three indices.

******Insert Table 2 about here******

Outcomes of the Regression Analyses

The Influence of Organisational and Task Factors on TPD at Work Activities

In order to test the relationship between the organisational and task factors, on the one hand, and participation in TPD at Work activities, on the other hand, multiple hierarchical regression analyses have been performed (see Table 3 for the specific outcomes). In the first step of the regression analysis, the demographic characteristics primary/secondary education, gender, educational qualification and age were entered as control variables. In step two, the cultural influencing factors were entered. In step three, the social-psychological relations were entered. Finally, the task factors were entered in step four of the regression analysis. This is

the order as explained in Evers *et al.* (2011) and which follows logically from the theoretical framework and hypotheses, see also Figure 1.

Hypothesis 1 stated that the organisational factors learning climate, team membership, transformational leadership, social support from one's immediate supervisor, career possibilities offered by the supervisor, and social support from close colleagues are positively related to TPD at Work activities. This hypothesis was partly supported in the study. As can be seen from Table 3, from the cultural factors, learning climate appeared to be the most important predictor, influencing participation in training related to work (β = .10, p < .05) and collaborating with colleagues with the aim of improving school development (β = .09, p < .05). Team membership appeared to be not related to TPD at Work activities.

As Table 3 shows, as regards social-psychological relations, social support from one's immediate supervisor and social support from close colleagues appeared to have the highest impact on the participation in TPD at Work activities. Social support from one's immediate supervisor appeared to have a positive influence on reflecting and asking for feedback (β = .15, p < .01), and on collaborating with colleagues with the aim of improving school development (β = .16, p < .01). Social support from close colleagues appeared to have a positive influence on experimenting (β = .10, p < .05), on reflecting and asking for feedback (β = .15, p < .01), on collaborating with colleagues with the aim of improving the lessons (β = .32, p < .01), and on collaborating with colleagues with the aim of improving school development (β = .18, p < .01). Surprisingly, transformational leadership and career possibilities offered by the supervisor did not have a significant impact on any of the TPD at Work activities.

******Insert Table 3 about here******

Hypothesis 2 stated that work pressure and emotional demands are positively related to TPD at Work activities. This hypothesis was partly confirmed with the data as well. Work pressure

positively influenced reflecting and asking for feedback (β = .13, p < .01), collaborating with colleagues with the aim of improving the lessons (β = .11, p < .01), and collaborating with colleagues with the aim of improving school development (β = .15, p < .01). Emotional demands appeared to significantly influence keeping up-to-date: reading (β = .09, p < .05) and reflecting and asking for feedback (β = .10, p < .01).

Hypothesis 3 stated that autonomy, learning value of the function, and tasks apart from teaching are positively related to TPD at Work activities. Again this hypothesis was only partly supported. The learning value of the function was the most influential factor, it positively influenced reading (β = .16, p < .01) and reflecting and asking for feedback (β = .17, p < .01). Tasks apart from teaching, surprisingly, appeared to have a (although small) negative influence on the participation in collaborating with colleagues with the aim of improving the lessons (β = -.07, p = .05). However, as expected, it did have a positive influence on collaborating with colleagues with the aim of improving school development (β = .18, p < .01). Finally, autonomy appeared not to be related to any of the TPD at Work activities.

In conclusion, in particular the organisational factors learning climate, social support from one's immediate supervisor, social support from close colleagues, and the task factor learning value of the function can act as positive job resources for TPD at Work activities.

Conclusions and Discussion

Reflections

The findings of our quantitative study provided support that learning climate, social support from one's immediate supervisor, social support from close colleagues, and learning value of the function are main job resources with respect to teachers' participation in TPD at Work activities. These predictors explained a significant amount of variance on teachers'

participation in TPD at Work activities and are comparable to the resources' factors that Xanthopoulou *et al.* (2007) used in their JD-R model research. Only autonomy appeared, contrary to our expectations, not to have a direct effect on TPD at work activities.

From our findings it is essential for school management and HRM professionals not to neglect these influencing factors when setting up a professional development trajectory in schools. First of all, school management should be aware that job demands (such as work pressure and emotional demands) are not necessarily negatively related to possibilities for learning. Rather they might even enhance learning but their levels should be monitored in order to prevent health-related problems and even exhaustion (see Bakker and Demerouti, 2007). Furthermore, the learning value of the function and learning climate should enable the employee's further professional development (Boerlijst *et al.*, 1993). Another finding from our study is that tasks which teachers have to fulfil apart from teaching is negatively influencing collaboration to improve the lessons, and positively influencing collaboration to improve school development. This could indicate that these types of additional tasks are especially focused on activities to improve school development. Possibly, a further attention for exchanging lesson content knowledge—for instance by task circulation among pairs of teachers—might result in positive effects with regard to collaboration to improve the lessons as well.

Finally, our findings showed that, surprisingly, transformational leadership, team membership, career possibilities offered by the supervisor, and autonomy had no direct influence on TPD at Work activities. Although it is useful to investigate direct effects of our hypothesized influencing factors, it could be that other (personal) variables play a mediating role between these conditions and actual TPD at Work learning behaviour.

Limitations and Recommendations for Further Research

Our study has a number of limitations. First, the study is cross-sectional (i.e., all data have been collected at one point in time). In order to address issues of causality, it would be valuable to examine the proposed model in a longitudinal study. Second, the study was specifically aimed at the teaching profession, so further research is necessary to investigate its generalizability to other occupations and/or countries as well. Third, because self-ratings have been used for the predictors and the outcome variables, there is a risk for common-method bias. More specific, Van der Heijden (1998) found that employees rate themselves significantly higher on occupational expertise, compared to their supervisors. This could imply a 'leniency effect' (Cascio, 1991). The common-method bias might be combated by using other rating sources as well, for instance, one's direct supervisor or close colleagues, or pupils' ratings.

Fourth, Hox (2002) stated that statistical interdependence can be neglected if the variance attributed to the grouping variable is around 5% or less (Hox, 2002). The variances attributed to the grouping variable (the Intra-Class Correlation) for collaborating with colleagues with the aim of improving the lessons, and collaborating with colleagues with the aim of improving school development, were both above this level, 13.14% and 11.00%, respectively. Therefore, for these dependent variables, correlation and regression effects could be somewhat overestimated. Future research ought to include multi-level analyses for these learning activities. Fifth, an interesting next phase in exploring the relationship between the resources that have been found to be significant predictors (learning climate, social support from one's immediate supervisor, social support from close colleagues, and learning value of the function) and TPD at Work, could be to investigate how these resources work together in enhancing this type of learning. Finally, further research is necessary to better understand why transformational leadership, team membership, career possibilities offered by the supervisor,

and autonomy had no effect on TPD at Work activities. Possibly, other (personal) variables, like self-efficacy beliefs (Bandura, 1989; Fishbein and Ajzen, 2010), or flow (see also Van der Heijden and Bakker, 2011) play a mediating role between these factors and actual participation in TPD at Work learning behaviour.

Practical Implications

The results in this article suggest that management and HRM professionals in schools should stimulate social support given to employees and among colleagues, in order to create a work environment where TPD at Work flourishes. Maybe employees' first thought when thinking about possible ways of receiving social support is colleagues being willing to listen to their problems or giving them a compliment (and in this way to give emotional support), which indeed is very important, also for learning on the job. However, it is equally necessary to give instrumental (focusing on accomplishing tasks), informational (helping colleagues to proceed with their tasks) or appraisal (input for one's self-evaluation) support. Furthermore, to stimulate TPD at Work, it is vital for school management and HRM professionals to make sure that teachers can learn from their job. This means safe-guarding that the function of teachers itself keeps having enough potential for learning and development. This might be done, for example, by enabling them to perform diverse tasks and integrating cooperation between teachers before, during and after teaching. It is also critical to strive for a sound learning climate, where different opinions are valued.

Work organisations, with schools being no exception, change rapidly, and individual employees are more and more urged to develop themselves continuously in order to adapt and to stay in a desired job. Notwithstanding the increasing individual's responsibility for life-long employability (Van der Heijden *et al.*, 2009), the working organisation is still a key factor in professional and career development. The research that is reported in this article

indicates that school organizations have ample opportunities to stimulate TPD at work, herewith, enhancing teachers' career potential or employability (see also Van der Heijden *et al.*, 2015). Perceptions of teachers indicating that their school's management provides sound leadership, support and concern about their further development, is of utmost importance in this regard. Moreover, teachers' jobs have to represent challenging constellations of tasks and responsibilities (see also Van der Heijden and Bakker, 2011), wherein they have ample opportunities for learning throughout their entire career. And last but not least, teachers should work in an environment wherein they experience a supportive learning climate with high-quality relationships and wherein both their immediate supervisor and close colleagues are willing to help them and wherein it is safe to make mistakes.

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Table 1. Sample Characteristics

	Primary teachers	Secondary teachers
n	118	574
	%	%
Gender		
Men	13.0	52.8
Women	87.0	47.2
Education		
Low	.0	4.2
Middle	4.2	.9
Bachelor	90.7	73.2
Master	5.1	21.8
Age		
< 21	.8	.2
21–25	11.9	10.5
26–30	9.3	9.2
31–35	6.8	2.8
36–40	16.1	7.7
41–45	16.1	11.0
46–50	16.9	13.2
51–55	13.6	21.8
56–60	5.9	18.1
61–65	2.5	5.6
> 65	.0	.0

Table 2. Means, Standard Deviations, Reliability Coefficients (Cronbach's Alphas on the Diagonal), and Inter-Correlations between the Model Variables, *n* = 692

	M	SD	Range	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
1. primary/second. educ.	-	-	-	-																				
2. gender	-	-	-	.30**	-																			
3. education	3.11	.58	1-4	.08*	.04	-																		
4. age	6.35	2.44	1-11	.14**	.25**	.10*	-																	
5. learning climate	2.03	.51	1-4	-.25**	-.07	-.11**	-.10**	*.70*																
6. team membership	1.77	.42	1-2	-.25**	-.14**	-.04	-.05	.02	-															
7. transformational leadership	4.74	1.24	1-7	-.12**	-.09*	-.09*	-.13**	.51**	.03	*.95*														
8. career possibilities offered	3.17	1.47	1-7	-.02	.01	-.11**	-.11**	.40**	-.09*	.42**	*.90*													
9. social support supervisor	3.52	.98	1-6	-.05	-.09*	-.13**	-.21**	.47**	.07	.72**	.33**	*.85*												
10. social support colleagues	3.76	.83	1-6	-.01	-.08*	-.15**	-.19**	.31**	-.02	.30**	.23**	.40**	*.78*											
11. work pressure	2.44	.60	1-4	-.13**	-.06	.11**	.07	-.20**	.06	-.11**	-.20**	-.16**	-.14**	*.74*										
12. emotional demands	2.10	.51	1-4	.07	.03	.08*	.06	-.06	-.02	-.13**	-.09*	-.11**	-.07	.32**	*.67*									
13. autonomy	2.58	.59	1-4	-.04	-.01	-.07	-.04	.22**	-.03	.15**	.15**	.19**	.08*	-.35**	-.12**	*.82*								
14. learning value function	4.17	.91	1-6	-.09*	-.09*	-.14**	-.12**	.36**	.06	.38**	.23**	.37**	.25**	-.10*	-.01	.32**	*.86*							
15. tasks apart from teaching	1.64	.48	1-2	.28**	.08*	.07	.12**	-.07	-.04	-.04	-.05	.00	-.06	.02	.05	-.02	.00	-						
16. reading	2.72	.70	1-4	-.01	-.00	.02	.03	.09*	.02	.11**	.09*	.11**	.10*	.09*	.10**	.00	.18**	.01	*.73*					
17. work related training	1.90	.73	1-4	-.27**	-.13**	-.04	-.12**	.22**	.05	.15**	.12**	.14**	.10*	.03	.02	.08*	.17**	-.06	.31**	*.72*				
18. experimenting	2.32	.63	1-4	.01	-.03	.05	-.05	.08*	.04	.12**	.10**	.12**	.13**	.04	.05	.07	.13**	-.02	.40**	.19**	*.80*			
19. reflecting & ask. feedback	2.37	.57	1-4	.05	-.06	.01	-.07	.11**	.04	.14**	.10*	.21**	.22**	.08*	.12**	.07	.24**	-.03	.35**	.25**	.48**	*.67*		
20. collaborating lessons	2.42	.65	1-4	-.23**	-.20**	-.03	-.07	.22**	.09*	.21**	.10*	.24**	.36**	.06	.01	.08*	.21**	-.13**	.26**	.20**	.40**	.41**	*.67*	
21. collaborating school devel.	2.50	.67	1-4	-.27**	-.10**	.01	-.01	.24**	.11**	.20**	.05	.24**	.22**	.13**	.06	.08*	.19**	.10**	.23**	.29**	.27**	.28**	.46**	*.73*

Note. * Correlation was significant at the .05 level (two-tailed)

** Correlation was significant at the .01 level (two-tailed)

Table 3. Hierarchical Regression Analyses with Demographic Characteristics, Organisational and Task Factors as Predictors, and Participation in TPD at Work Activities as Dependents, *n* = 692

Predictors	**Dependent variables**					
	Keeping up-to-date: reading	Keeping up-to-date: work-related training	Experimenting	Reflecting and asking feedback	Collaborating lesson	Collaborating school
Step 1						
Primary/second. educ.	.00	-.22**	.04	.11**	-.14**	-.27**
Gender	.01	-.04	-.01	-.04	-.12	.00
Educational qualification	.04	.01	.08*	.06	.04	.06
Age	.07	-.05	-.02	-.01	.07	.06
Step 2						
Learning climate	.00	.10*	-.02	.00	.03	.09*
Team membership	.02	-.02	.05	.04	.03	.04
Step 3						
Transformational leadership	.01	-.01	.03	-.06	.01	-.02
Career possibilities offered by the supervisor	.06	.06	.07	.04	-.01	-.04
Social support immediate supervisor	.05	.03	.03	.15**	.08	.16**
Social support close colleagues	.06	.02	.10*	.15**	.32**	.18**
Step 4						
Work pressure	.08	.04	.08	.13**	.11**	.15**
Emotional demands	.09*	.04	.05	.10**	.03	.06
Autonomy	-.04	.03	.06	.05	.05	.07
Learning value of function	.16**	.08	.07	.17**	.07	.05
Tasks apart from teaching	.00	.02	-.03	-.06	-.07	.18**
Model summary						
Step 1 Δ R square	.00	.08	.01	.01	.07	.08
Step 2 Δ R square	.01	.02	.01	.02	.03	.04
Step 3 Δ R square	.02	.01	.02	.05	.11	.05
Step 4 Δ R square	.04	.01	.02	.06	.02	.06
Full model R square	.07	.12	.06	.14	.23	.23
Overall F	3.12**	6.09**	2.53**	7.12**	13.37**	13.28**

Note. Standardised regression coefficients (Beta) shown for the *last* step in the regression.
* $p < .05$ ** $p < 0.01$.

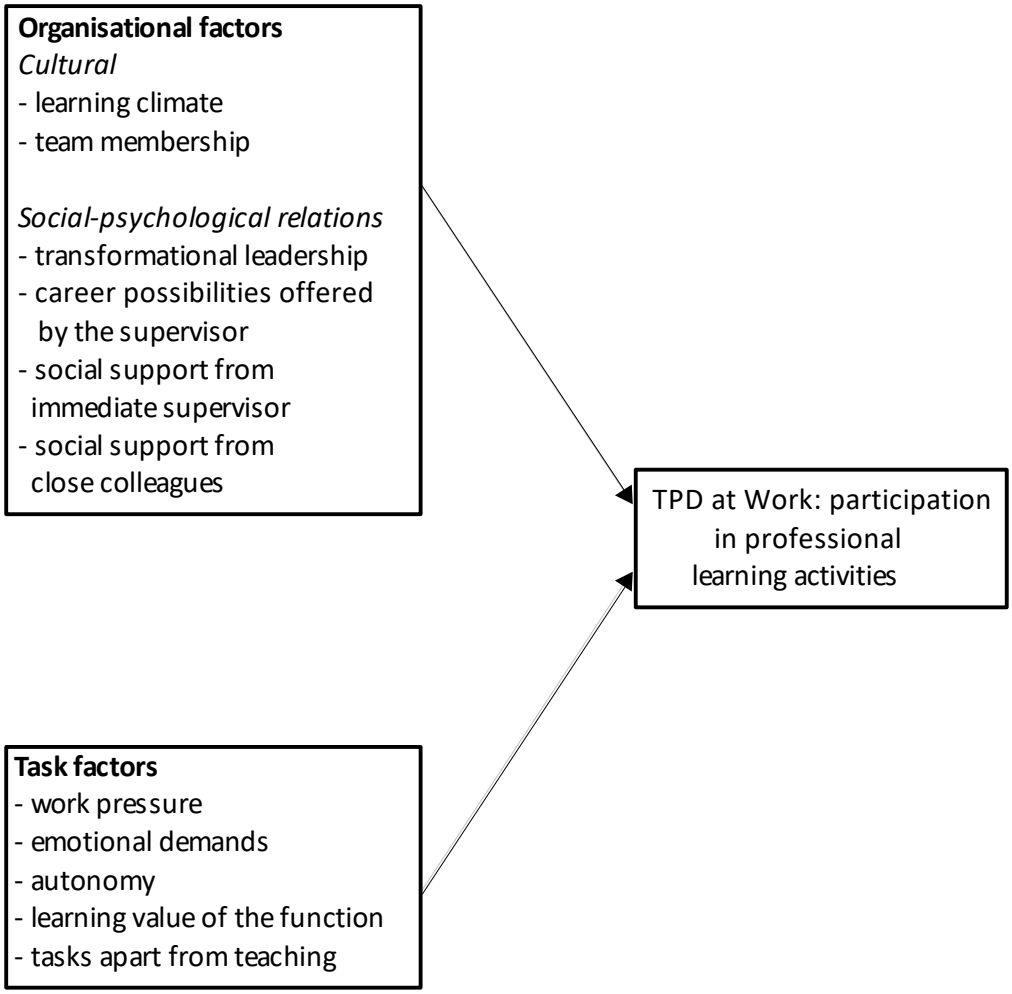

Figure 1. The TPD at Work Model